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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/596,996

07/05/2006

Itshak Ben Yesha

1400.0122

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12/29/2009

The Law Office of Michael E. Kondoudis
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EXAMINER

BEHRINGER, LUTHER G

ART UNIT

PAPER NUMBER

3766

NOTIFICATION DATE

DELIVERY MODE

12/29/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

rlynn@mekiplaw.com

Office Action Summary	Application No. 10/596,996	Applicant(s) YESHA, ITSHAK BEN	
	Examiner Luther G. Behringer	Art Unit 3766	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the communication received on 10/26/2009 concerning application no. 10/596996 filed on 07/05/2006.

Response to Arguments

2. Applicant's arguments with respect to claim(s) 2 – 22 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claim(s) 3, 4, 9, 10, 11, 13, 14, 18, 20, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Miller (US 5,796,340)**.

Regarding **claim(s) 11, 22 and 23**, Miller discloses a system and method for non-invasive monitoring of subject heartbeat rate, said system and method comprised of: collecting vertical pressure signals comprising vertical pressure measurements along time received from at least two sensors located beneath the subject's body at different locations, *in the legs of a bed or crib*; and inherently creating a horizontal signal exhibiting horizontal mass movements over time attributed to the subjects blood circulation; and analyzing the horizontal signal for extracting the subject's heartbeat rate, *calculating net force through the subject's center of gravity* (Col. 2, ll. 49 – 67; Col. 3, ll. 23 – 29).

Further regarding **claim 23**, Miller discloses sensing, using a first pressure sensor, a first vertical pressure applied to the first pressure sensor by the lying subject and outputting a first signal indicative of the sensed first vertical pressure; subtracting the first signal from the second signal to yield a difference signal; and extracting the lying subject's heartbeat rate by analyzing the difference signal, *calculating net force through the subject's center of gravity* (Col. 2, ll. 49 – 67).

5. Miller discloses the claimed invention except for the necessary steps to create the net force signal, *horizontal signal exhibiting horizontal mass movements, etc.* It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide for these steps, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. ***Nerwin v. Erlichman***, 168 USPQ 177, 179.

With regard to **claim(s) 3 and 13**, Miller discloses the step of identifying the respiration rate (Col. 3, ll. 23 – 29).

Regarding **claim(s) 4 and 14**, Miller inherently discloses a system and method further comprising the step of calculating a sum signal comprising the sum of at least two vertical pressure signals and filtering and analyzing the calculated sum signal in combination with the horizontal signal for identifying and detecting the heartbeat rate and respiration rate (Col 2, ll. 49 – 67).

6. Miller is silent as to the second or more vertical pressure signals, but does disclose the use of multiple sensors (Col. 3, ll. 23 – 29). It would have been obvious to a person having ordinary skill in the art at the time of the invention to provide for a second

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(or more) vertical pressure signal, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

With regard to **claim(s) 9 and 18**, Miller discloses at least one sensor is located beneath the lower part of the subject's body and at least one sensor is located beneath the upper part of the subject's body, *sensors incorporated in the legs of a bed or crib* (Col. 3, ll. 23 – 29).

Regarding **claim(s) 10 and 20**, Miller discloses wherein the horizontal signal represents the horizontal movements of the subject and the analyzing includes detection of blood circulation (Col. 3, ll. 23 – 29).

7. Claim(s) 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Miller (US 5,796,340)** in view of **Sackner et al. (US 2002/0032386)**.

Regarding **claim(s) 2 and 12**, Miller fails to disclose the step of filtering the horizontal signals for reducing background noise and respiratory artifact and other body movements in accordance with predefined signal frequency band values.

However, Sackner et al. teaches the step of filtering the horizontal signals for reducing background noise and respiratory artifact and other body movements in accordance with predefined signal frequency band values (Pg. 12, Paragraph [0114]).

8. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the disclosure of Miller with the step of reducing background noise and respiratory artifact as taught by Sackner et al. since it is well known in the art

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that doing so would increase the ease and reliability of the interpretation of the data delivered by Millers invention.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Miller (US 5,796,340)** in view of **Cornish et al. (US 2006/0247543)**.

Regarding **claim 6**, Miller fails to disclose the step of calibration for calculating the pre-defined filter signal frequency band values, wherein calibration is based on the FFT algorithm.

However, Cornish et al. teaches comprising the step of calibration for calculating the pre-defined filter signal frequency band values, wherein calibration is based on the FFT algorithm [0092 – 0093].

10. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the disclosure of Miller with the teachings of Cornish et al. since it is well known in the art that doing so increases the reliability of the invention as disclosed by Miller.

11. Claim(s) 5, 7, 8, 15, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Miller (US 5,796,340)** in view of **Porges (US 4,510,944)**.

With regard to **claim(s) 5 and 15**, Miller fails to disclose the step of selecting the horizontal signal having the largest integral value of all horizontal signals, wherein the identification and detection of the heartbeat rate is based on said selected horizontal signal.

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However, Porges teaches the step of selecting the horizontal signal having the largest integral value of all horizontal signals, wherein the identification and detection of the heartbeat rate is based on said selected horizontal signal (Col. 7, ll. 29 – 40).

12. A person of ordinary skill in the art, upon reading the reference, would have recognized the desirability of providing a peak detector to aid in determining a heart rate. Thus, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify Miller to include a peak detector as taught by Porges, since doing so would aid in the detection of a patients heart rate.

Regarding **claim(s) 7 and 17**, Miller fails to disclose wherein the filtering is achieved by a high pass filter, wherein the cut off frequency is twice as a pre-defined heart rate.

However, Porges teaches wherein the filtering is achieved by a high pass filter (Col. 1, ll. 57 – 61), wherein the cut off frequency is twice a pre-defined heart rate (Col. 13, ll. 5 – 15).

13. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the disclosure of Miller with the teachings of Porges since it is well known in the art that doing so increases the reliability of the invention as disclosed by Miller.

14. Claim(s) 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Miller (US 5,796,340)** in view of **Sackner et al. (US 2002/0032386)** in view of **Porges (US 4,510,944)**.

Regarding **claim(s) 8 and 19**, Miller in view of Sackner fails to disclose wherein the analyzing includes identifying peak values of the filtered signal.

However, Porges teaches wherein the analyzing includes identifying peak values of the filtered signal (Col. 8, ll. 37 – 41).

15. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the disclosure of Miller in view of Sackner with the teachings of Porges since it is well known in the art that doing so would aid in the reliability of a diagnosis of a patient utilizing the invention as disclosed by Miller in view of Sackner.

16. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Miller (US 5,796,340)** in view of **Sackner et al. (US 2002/0032386)** in view of **Cornish et al. (US 2006/0247543)**.

Regarding **claim 16**, Miller in view of Sackner fails to disclose a calibration module for calculating the pre-defined signal frequency band values, wherein calibration is based on the FFT algorithm.

However, Cornish et al. teaches comprising the step of calibration for calculating the pre-defined filter signal frequency band values, wherein calibration is based on the FFT algorithm [0092 – 0093].

It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the disclosure of Miller in view of Sackner with the teachings of Cornish et al. since it is well known in the art that doing so increases the reliability of the invention as disclosed by Miller in view of Sackner.

17. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Miller (US 5,796,340)** further in view of **Bridger et al. (US 6,491,647)**.

Regarding **claim 21**, Miller fails to disclose wherein the sensors are integrated within a single rigid housing.

However, Bridger et al. teaches wherein the sensors are integrated within a single rigid housing (Col. 15, ll. 39 – 43).

18. It would have been obvious to a person having ordinary skill in the art at the time of the invention to use the sensors integrated within a single rigid housing as taught by Bridger et al. to modify the invention as disclosed by Miller. Using the known technique of a rigid housing multi sensor package to provide uniform packaging and prevent device modification of the invention as disclosed by Miller would have been obvious to one of ordinary skill.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luther G. Behringer whose telephone number is (571)270-3868. The examiner can normally be reached on Mon - Thurs 9:00 - 6:30; 2nd Friday 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Layno can be reached on (571) 272-4949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Carl H. Layno/
Supervisory Patent Examiner, Art Unit 3766

/Luther G Behringer/
Examiner, Art Unit 3766